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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/362,055 07/28/99 GOSAIN

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EXAMINER

SCHILLINGER, L

ART UNIT

PAPER NUMBER

2813

DATE MAILED:

06/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/362,055

Applicant(s)
Gosaln et al

Examiner
Laura Schillinger

Art Unit
2813



-- Th MAILING DATE of this communication app ars n the cov r sh et with th corr sp nd nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1, 3, and 5-12 is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1, 3, and 5-12 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claims 1, 3 and 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al ('585).

In reference to amended claim 1, Zhang et al teaches a method comprising:

forming a semiconductor film on a substrate (Col.8, lines: 45-56);

forming a hydrogen-containing film on the semiconductor film (Col.9, lines: 55-65);

irradiating a pulse energy beam using calculated values to heat the hydrogen-containing film to diffuse hydrogen in the semiconductor film (Col.10, lines: 15-21);

further comprising irradiating other pulse energy beam to crystallize or re-crystallize the semiconductor film after the step of forming the film on the substrate and before forming the hydrogen containing film on the semiconductor film, energy density of the energy beam used for heating the hydrogen film being set lower than the crystallizing beam (Col.6, lines: 57-65).

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In reference to claim 3, Zhang et al teaches wherein the pulse energy beam is a laser, electron, or ion beam (Col.10, lines: 15-21).

In reference to claim 6, Zhang et al teaches wherein the semiconductor film is polycrystalline, amorphous, or single crystal silicon film (Col.8, line: 53).

In reference to claim 7, Zhang et al teaches wherein the hydrogen containing film is silicon nitride or amorphous silicon, or a combination (Col.9, lines: 55-65).

In reference to claim 8, Zhang et al teaches including an absorption layer (Col.4, lines: 55-60).

In reference to claim 9, Zhang et al teaches wherein the absorption layer is selected from the group consisting of molybdenum, tantalum, and tungsten (Col.4, lines: 55-60) .

In reference to claim 10, Zhang et al teaches wherein the absorption film is silicon (Col.6, lines: 5-8).

In reference to claim 11, Zhang et al teaches wherein the device is a TFT (Col.1, lines: 15-20).

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In reference to claim 12, Zhang teaches calculating pulse energy beam for an energy density, a number of pulses, and a pulse width of a pulse energy beam so that the beam does not melt the semiconductor film (this claim limitation is inherent, warping layers/substrates through annealing processes is a well-known semiconductor processing problem, thus annealing steps performed by lasers are distributed in carefully calculated doses to ensure that the substrate and its corresponding layers do not become warped- Zhang teaches laser irradiation and it is inherent that Zhang's laser processing would be calculated so as not to melt and warp the substrates layers, because this would render an inoperable device; See also Col.6, lines: 55-65 and Col.4, lines: 35-40).

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al ('585) as applied to claim 1 above, and further in view of Inou ('461).

In reference to claim 5, Zhang teaches wherein the substrate is plastic (Col.1, lines: 15-20).

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However Zhang fails to explicitly teach that the plastic substrate is selected from the group comprising: polyether sulfone, polyethylene terephthalate, polymethyl methacrylate, and polycarbonate.

However, Inou teaches that plastic substrates may be selected from the group comprising: polyether sulfone, polyethylene terephthalate, polymethyl methacrylate, and polycarbonate (Col.7, lines: 25-30).

Therefore it would have been obvious to one of ordinary skill in the art to combine the plastic substrate taught by Zhang with the materials taught by Inou, because the materials taught by Inou are heat resistant and would prevent substrate warpage.

5.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hudgens et al ('379) teaches a similar method for a plasma deposited coating and low temperature plasma method and JP 08228010A which teaches a 2-step laser process.

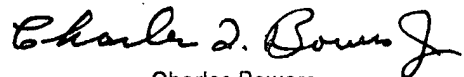
6.

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Any inquiry concerning this communication from examiner should be directed to Laura Schillinger whose telephone number is (703) 308-3155. The examiner can normally be reached by telephone on Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Bowers, can be reached on (703) 308-2417. The fax phone number for the group is (703) 308-7722.

LMS



Charles Bowers
Supervisory Patent Examiner
Technology Center 2800

June 7, 2001